



IHB File No. S3/7050

CIRCULAR LETTER 18/2011
21 February 2011

HYDROGRAPHIC DICTIONARY (S-32) – NEW OR REVISED DEFINITIONS

Reference: IHB CL 75/2010 dated 12 November

Dear Hydrographer,

1 The IHB would like to thank the following 49 Member States who replied to the Reference: Algeria; Argentina; Australia; Bahrain; Bangladesh; Belgium; Brazil; Canada; Chile; Colombia; Croatia; Cuba; Cyprus; Denmark; Ecuador; Finland; France; Germany; Iceland; IR of Iran; Ireland; Italy; Japan; Korea Rep of; Malaysia; Mexico; Monaco; Morocco; Netherlands; New Zealand; Nigeria; Norway; Oman; Pakistan; Papua New Guinea; Peru; Poland; Qatar; Russian Federation; Singapore; Slovenia; South Africa; Spain; Suriname; Sweden; Turkey; Ukraine; UK; and Venezuela. All 49 Member States supported the new and/or amended definitions in general with 14 States providing comments on specific definitions. These comments, together with explanatory responses where appropriate, are provided at Annex A.

2 The definitions of Interferometric Echo Sounder and Multi Beam Echo Sounder are perhaps somewhat longer than might normally be required for a dictionary but this has been done intentionally to indicate the difference in measurement technique between these two equipments.

3 There are currently 80 Member States of the IHO with two States suspended. Therefore in accordance with paragraph 6 of Article VI of the Convention on the IHO, the majority required for adoption of the definitions is 39. Consequently the definitions have been adopted, are attached at Annex B and will be incorporated in the on-line "Wiki" version of S-32 in the near future.

4 The on-line "Wiki" dictionaries, currently English and French only, are available through the IHO web site or directly at <http://hd.iho.int>.

On behalf of the Directing Committee
Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Robert Ward', is written over a white background.

Robert WARD
Director

Annex A: Comments by Member States
Annex B: Definitions to be included in S-32

Argentina: Argentina raised several comments regarding the Spanish text of the definitions. These points have been discussed separately with Spain, Argentina and Colombia. The final agreed definitions in Spanish are in the Spanish text of this CL.

Australia: Suggest for clarity that the definition of LIDAR be amended to read: "LIDAR (Light Detection and Ranging). A technology use to"

Comment by Chair of HDWG and IHB: The text (Light Detection and Ranging) has been included in the English and French texts. It was already in the Spanish text.

Canada: While Canada can support the definitions as proposed our technical experts have proposed some text that may be useful to HDWG future work. These will be compiled and sent directly to the Chair of the HDWG to use as he sees fit.

Chile: Swath(e): The strip or lane on the ground or SEA FLOOR scanned by the SWATH(E) SOUNDING SYSTEM "*across track direction*" when the SURVEY platform proceeds along its COURSE.

Comment by Chair of HDWG and IHB: It is agreed that a swath(e) sounding system measures in an "across track direction" however the ensonified swath(e) is a "strip" with dimensions both along and across the track and it is therefore considered that these words do not add to the definition.

Colombia: Colombia raised several comments regarding the Spanish text of the definitions. These points have been discussed separately with Spain, Argentina and Colombia. The final agreed definitions in Spanish are in the Spanish text of this CL.

France: Recommended track, even though the proposed definition conforms to that used by IMO, as opposed to "recommended route" it might be usefully specified that a "recommended track" generally has a determined width on both sides of its centre line (axis). The amended definition would therefore be: **Recommended Track:** A route, "*of a determined width,*" which has been specially examined to ensure so far as possible that it is free of dangers and along "*and inside of*" which ships are advised to navigate.

Comment by Chair of HDWG and IHB: It is considered better to retain consistency with the IMO definition

Malaysia: Suggest to include the words (seabed or sea-bed) under the term sea bed. e.g. sea bed (seabed or sea-bed): See SEA FLOOR. Good effort by the HDWG and CSPCWG members.

Comment by the Chair of HDWG and IHB: While the intention to enhance the cross referencing is understood it is not considered necessary, as once the new definitions are added, anyone who searches on "seabed", "sea-bed", "sea bed" or "sea bottom" will be directed to "SEA FLOOR" where the alternative terms are mentioned.

Nigeria: LIDAR: need to insert a comma after the third word "use" of the third sentence.

Comment by Chair of HDWG and IHB: Agreed.

Interferometric Echo Sounder: Second sentence is long, winding and tortuous and conveys no message at first reading. Use of punctuation marks may help. Suggested that a semi-colon after the word "emission" and a comma after the word "sample" (all on the second line of the sentence) be inserted.

Comment by Chair of HDWG and IHB: LIDAR? Agreed. This sentence has been split into two with a period(.) after "emission".

Norway: Our only comment is related to the definition of "Wind Turbine". We suggest to add the following: "They can be fixed or floating".

Comment by Chair of HDWG and IHB: Agreed the words "and maybe fixed or floating" have been added to the end of the proposed definition.

Oman:

Inshore Traffic Zone: Capital "S" for Sea on last line.

Comment by Chair of HDWG and IHB: Agreed.

No anchoring area: In the last sentence add "its cargo" between "ship" and "or the persons on board".

Comment by Chair of HDWG and IHB: The text recommended by the HDWG is aligned with that adopted by the IMO. It is considered that the "cargo" might reasonably be considered to be included in the "ship".

Unsurveyed area: replace "very poor" with "no systematic surveys have been conducted".

Comment by Chair of HDWG and IHB: See comments under UK.

Sea floor: After "OCEAN" add "and Seas where" and delete "when"

Comment by Chair of HDWG and IHB: Agreed.

Oman also noted typographical errors for Wind Farm, International Voyage and Swath(e) which have been corrected.

Papua New Guinea: Survey vessel (ship) or platform should just be "Survey craft" or "Survey vessel"

Comment by Chair of HDWG and IHB: The term "platform (e.g. aircraft)" was included to reflect that surveys are no longer conducted solely from ships. This amendment followed the introduction of the definition of "LIDAR"

South Africa: In the definition of Swath(e) system "Interferometric" is incorrectly spelt.

Comment by Chair of HDWG and IHB: This has been corrected (English text only).

Sweden: We have recently been involved in terminology work at our administration and the following format was established:

Term

Definition:

Comment: (when needed)

Where definition is an expansion and description of the term. The definition should ideally be short and condensed so that it may replace the term in a normal sentence. If further clarification is needed this should be added as a comment.

Some terms suggested e.g. from S-44 WG have definitions that are too complicated given the principles above.

We do not suggest alternative definitions at this stage but propose that the principles above are considered for future terminology work including a possible revision of S-32 in its entirety.

Comment by Chair of HDWG and IHB: This comment will be passed to members of the HDWG for their future reference.

UK: The UK offers the following comments:

Unsurveyed area: S-4 has two sub-sections, one (B-417) deals with 'Areas with inadequate depth information', the other (B-418) with 'Unsurveyed areas'. Because 'inadequate' is a subjective word, an explanation of 'inadequately surveyed area' was developed relating to the context of nautical charts. It

may be accepted that S-4 is sufficient guidance and not necessary to include this lengthy explanation in S-32. However, C8PCWG carefully worded the explanation of 'Unsurveyed areas' to distinguish it from 'inadequately surveyed areas'. Unfortunately, the definition as proposed by HDWG still includes the subjective term 'or very poor', which effectively widens that definition to include 'inadequate'. We therefore propose that either the full explanation from S-4 is used in S-32 or, as that is lengthy, the more succinct version proposed by HDWG is used, but with the clause 'or very poor' removed.

Comment by Chair of HDWG and IHB: The point raised by the UK is accepted and the words "or very poor" have been removed.

Phase of a navigational light: During the revision of S-4 section 8470, C8PCWG sought advice from IALA on a number of technical matters relating to navigational lights. Consequently, S-4 B471.5 now states: "A visually discrete part of a light signal. It is bounded by changes between darkness and light, or between different colours, or between distinctly different luminous intensities, and it may be further discriminated by its duration." This section of S-4 was approved by M8 in 2009 - CL 71/2008 & 20/2009 refer. If alignment is sought, it is suggested that the IALA definition is most appropriate. C8PCWG are simply bringing the IALA definition, which is now included in S-4, to HDWG's attention through this response to IHB CL75/2010.

Comment by Chair of HDWG and IHB: The text of the revised definition, as initially proposed by C8PCWG has received sufficient Member State support for inclusion in S-32. It is considered to be an improvement on the existing text and will therefore be included in S-32. However since C8PCWG have now made a further revision to S-4 section 8470 the HDWG will be invited to consider the definition of "Phase of a navigational light" again.

Bank: UK does not consider it appropriate that the IHO's definition of a geographic descriptor should include an explicit statement "sufficient for safe SURFACE NAVIGATION" with no knowledge regarding its nautical context.

Comment by Chair of HDWG and IHB: The comment made by the UK is agreed and the words "but sufficient for safe SURFACE NAVIGATION" will be removed from the definition. GEBCO –SCUFN who are responsible for Publication B-6 will be advised of this decision.

Definitions to be included in S-32

Traffic Separation Scheme: A ROUTEING measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of TRAFFIC LANES.

Roundabout: A ROUTEING measure comprising a separation point or circular SEPARATION ZONE and a circular TRAFFIC LANE within defined limits. Traffic within the roundabout is separated by moving in a counter-clockwise direction around the separation point or zone.

Inshore Traffic Zone: A ROUTEING measure comprising a designated area between the landward boundary of a TRAFFIC SEPARATION SCHEME and the adjacent COAST, to be used in accordance with the provisions of rule 10(d), as amended, of the International Regulations for Preventing Collisions at Sea , 1972 (Collision Regulations).

Recommended Track: A route which has been specially examined to ensure so far as possible that it is free of dangers and along which, ships are advised to navigate.

Mandatory routeing system: A ROUTEING SYSTEM adopted by the INTERNATIONAL MARITIME ORGANIZATION, in accordance with the requirements of regulation V/10 of the 1974 SOLAS convention, for mandatory use by all ships, certain categories of ships or ships carrying certain cargoes.

No anchoring area: A ROUTEING measure comprising an area within defined limits where anchoring is hazardous or could result in unacceptable damage to the marine environment. Anchoring in a no anchoring area should be avoided by all ships or certain classes of ships, except in case of immediate danger to the ship or the persons on board.

Unsurveyed area: An area where HYDROGRAPHIC SURVEY data is non-existent.

Foul ground: An area over which it is safe to navigate but which should be avoided for anchoring, taking the GROUND or GROUND fishing.

Sea floor: The BOTTOM of the OCEAN and seas where there is a generally smooth gentle GRADIENT. Also referred to as sea bed (sometimes seabed or sea-bed), and sea bottom.

Seabed: See SEA FLOOR

Sea-bed: See SEA FLOOR.

Phase of a navigational light: Each element of the sequence of changing CHARACTERISTICS, including intervals of light and darkness (e.g. a flash, an ECLIPSE) or changes of colour.

Environmentally Sensitive Sea Area (ESSA): A generic term which is used to describe a wide range of areas, considered sensitive for a variety of environmental reasons.

Particularly Sensitive Sea Area (PSSA): An area which needs special protection through action by the IMO because of its significance for recognised ecological or socio-economic or scientific reasons and which may be vulnerable to damage by maritime activities. A PSSA is a type of ENVIRONMENTALLY SENSITIVE SEA AREA (ESSA).

Wind Turbine: A tower and associated equipment that generates electrical power from WIND. They can be sited OFFSHORE and may be either fixed or floating.

Wind Farm: A collection of WIND TURBINES that are collocated and are organised as a single power generation unit.

International Voyage: A voyage from a country to which the 1974 SOLAS convention applies to a port outside that country or conversely (SOLAS Chapter 1, Regulation 2d).

International Shipping: Shipping engaged on INTERNATIONAL VOYAGES.

Archipelagic Apron: A gentle SLOPE with a generally smooth surface of the SEA FLOOR, characteristically found around groups of ISLANDS or SEAMOUNTS.

Bank: An ELEVATION of the SEA FLOOR over which the DEPTH of water is relatively shallow.

Basin: A DEPRESSION of the SEA FLOOR more or less equidimensional in plan and of variable extent.

Borderland: A region adjacent to a CONTINENT, normally occupied by or bordering a SHELF and sometimes emerging as islands, that is irregular or blocky in plan or profile, with DEPTHS well in excess of those typical of a SHELF.

Continental Margin: The zone, generally consisting of SHELF, SLOPE and CONTINENTAL RISE, separating the CONTINENT from the ABYSSAL PLAIN or DEEP SEA FLOOR.

Continental Rise: A gentle slope rising from the oceanic depths towards the foot of a CONTINENTAL SLOPE.

Escarpment: An elongated, characteristically linear, steep SLOPE, separating horizontal or gently sloping sectors of the SEA FLOOR in non-SHELF areas. Also abbreviated to SCARP.

Fan: A relatively smooth, fan-like depositional feature normally sloping away from the outer termination of a CANYON or canyon system. Also called CONE.

Fracture Zone: An extensive linear zone of irregular topography, mountainous or faulted, characterized by steep-sided or asymmetrical RIDGES, clefts, TROUGHS, or ESCARPMENTS.

Gap: A narrow break in a RIDGE or RISE.

Knoll: A relatively small isolated ELEVATION of a rounded shape.

On the SEA FLOOR, an ELEVATION somewhat smaller than a SEAMOUNT and of rounded profile characteristically isolated or as a cluster. Also called HILL.

Levee: A depositional natural EMBANKMENT bordering a CANYON, VALLEY or SEA CHANNEL on the ocean floor.

Moat (or sea moat): An annular DEPRESSION that may not be continuous, located at the base of many SEAMOUNTS, oceanic islands and other isolated ELEVATIONS.

Plateau: A flat or nearly flat ELEVATION of considerable areal extent, dropping off abruptly on one or more sides; a TABLELAND.

Ridge: The linked major mid-oceanic mountain systems of global extent. Also called mid-OCEANIC RIDGE.

Rise: A broad ELEVATION that rises gently and generally smoothly from the SEA FLOOR.

Saddle: A broad PASS or COL, resembling in shape a riding saddle in a RIDGE or between contiguous ELEVATIONS.

Sea Channel: A continuously sloping elongated discrete DEPRESSION commonly found in FANS or ABYSSAL PLAINS and customarily bordered by LEVEES on one or both sides.

Shelf Edge (or shelf break). The line along which there is a marked increase of SLOPE at the seaward margin of a CONTINENTAL (or ISLAND) SHELF.

Shoal: An offshore hazard to surface NAVIGATION with substantially less clearance than the surrounding area and composed of unconsolidated material.

Sill: A SEA FLOOR barrier of relatively shallow DEPTH restricting water movement between BASINS.

Slope: The deepening SEA FLOOR out from the SHELF EDGE to the upper limit of the CONTINENTAL RISE, or the point where there is a general decrease in steepness.

Terrace: A relatively flat horizontal or gently inclined surface, sometimes long and narrow, which is bounded by a steeper ascending SLOPE on one side and by a steeper descending SLOPE on the opposite side.

Trench: A long narrow, characteristically very deep and asymmetrical DEPRESSION of the SEA FLOOR with relatively steep sides.

Trough: A long DEPRESSION of the SEA FLOOR characteristically flat bottomed and steep sided and normally shallower than a TRENCH.

Valley: submarine. A relatively shallow wide DEPRESSION, the bottom of which usually has a continuous GRADIENT. This term is generally not used for features that have CANYON-like characteristics for a significant portion of their extent.

Lidar. (Light Detection And Ranging) An instrument that measures distance to a reflecting object by emitting timed pulses of LASER light and measuring the time between emission and reception of reflected pulses. The measured time interval is converted to distance. In survey use, the lidar system usually scans the light PULSES across the TRACK of the SURVEY platform (usually an aircraft) so that successive PULSES cover a SWATH(E) either side of the platform's track. Infra-red LASERS will reflect off land and water, and are normally used for TOPOGRAPHIC lidar SURVEYS. Blue-green LASERS will penetrate water and are used in HYDROGRAPHIC lidar SURVEYS.

Survey vessel (ship) or platform. A vessel or platform (e.g. aircraft) specially equipped for carrying out TOPOGRAPHIC, HYDROGRAPHIC and/or OCEANOGRAPHIC SURVEY.

Systems of sounding lines: The predetermined lines that the SURVEY platform is to follow for the best development of the DEPTH CONTOURS in an area.

Swath(e). The strip or lane on the ground or SEA FLOOR scanned by the SWATH(E) SOUNDING SYSTEM when the SURVEY platform proceeds along its COURSE.

Swath(e) system. Any of a number of systems which are capable of obtaining a strip or lane of ELEVATIONS or SOUNDINGS from a single SURVEY PLATFORMS' TRACK. In HYDROGRAPHY, systems that fall into this category are MULTI BEAM ECHO SOUNDERS (MBES), INTERFEROMETRIC ECHO SOUNDERS and LIDAR.

Multi Beam Echo Sounder (MBES). A type of SWATH(E) SOUNDING SYSTEM in which the equipment emits a timed PULSE of sound that is narrow in the fore-aft direction and wide in the across track direction. The reflected sound is received by several RECEIVERS arranged as an ARRAY. By use of SIGNAL processing of the SIGNAL received at combinations of the RECEIVERS a much larger number, potentially many hundreds, of ACOUSTIC receive BEAM angles are formed. For each receive BEAM the time interval between emission and reception of the reflected sound is converted into a RANGE. Geometry is then used to convert each RANGE and receive BEAM angle to DEPTHS and also to position these DEPTHS within the SWATH(E) on the SEA FLOOR. MBES systems may also be referred to as beam-formers.

Interferometric Echo Sounder. A type of SWATH(E) SOUNDING SYSTEM in which the equipment emits a timed PULSE of sound that is narrow in the fore-aft direction and wide in the across-track direction. The system samples the reflected sound hundreds or even thousands of times for each emission. For each sample, the PHASE difference of the reflected sound arriving at two (or more) RECEIVERS located a known distance apart is measured and used to compute the ACOUSTIC angle of arrival. Also, the time difference between the emission and reception for each sample is converted to a RANGE. Geometry is then used to convert each RANGE and angle to DEPTHS and also to position these DEPTHS within the SWATH(E) on the SEA FLOOR.

SOLAS: International convention on "Safety Of Life At Sea"